Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	MM Docket No. 87-268
	)	
Advanced Television Systems	)	
and Their Impact Upon the	)	
Existing Television Broadcast Service	)	

COMMENTS OF PACIFIC FM, INC.

Pacific FM, Inc., by its attorneys, hereby submits its comments in reply to the Sixth Further Notice of Proposed Rule Making in the above-captioned matter, released August 14, 1996 (Sixth FNPRM). Pacific FM, Inc. is the licensee of station KOFY-TV, Channel 20, San Francisco, California. Pacific FM, Inc. files these comments to correct an error in the Commission's calculation and to request that its proposed DTV average effective radiated power (ERP) be increased to 500 kilowatts.

Appendix B to the Sixth FNPRM tentatively assigns DTV Channel 24 to KOFY-TV, with an ERP of 255.2 kilowatts. As is further explained in the attached engineering exhibit of Hammet & Edison, Inc. the Commission's calculation of 255.2 kilowatts is substantially less than the 800 kilowatts of DTV ERP that would be allowed for the HAAT of the proposed KOFY-TV DTV antenna were it a newly proposed DTV station on the same channel.

The Commission's calculations which resulted in assigning KOFY-TV an ERP of 255.2 kilowatts were based on an orientation error in the Commission's database regarding the directional antenna pattern for station KRCB-TV, Cotati, California. Accordingly, the Sixth FNPRM over-predicted the interference between the proposed

two adjacent-channel DTV allotments for KOFY-TV and KRCB-TV by 3.5 dB. When properly adjusted for the actual antenna orientation, as is shown in the attached engineering report, KOFY-TV could operate on DTV Channel 24 with 500 kilowatts ERP and still present less interference to KRCB-TV's DTV Channel 23 than was proposed to be allowed in the Sixth FNPRM.

Accordingly, Pacific FM, Inc. respectfully requests that the power level assigned to DTV Channel 24 at San Francisco be increased from the tentatively assigned 255.2 kilowatts to 500 kilowatts.

Respectfully submitted,

PACIFIC FM, INC.

By: _____
Gregg P. Skall
Its Attorney

Pepper & Corazzini, L.L.P.
1776 K Street, N.W.
Suite 200
Washington, D.C. 20006
(202) 296-0600

November 22, 1996

Station KOFY-TV
NTSC Channel 20
San Francsico, California

Engineering Exhibit in Support of Comments to the Sixth Further Notice of Proposed Rule Making MM Docket Number 87-268 (DTV Channel Allotments)

November 19, 1996

HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

Station KOFY-TV • NTSC Channel 20 • San Francisco, California

Statement of Dane E. Ericksen, Consulting Engineer

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Pacific FM, Inc., licensee of NTSC Station KOFY-TV, Channel 20, San Francisco, California, to prepare an engineering exhibit in support of its comments to the Sixth Further Notice of Proposed Rule Making to Mass Media Bureau Docket No. 87-268, concerning digital television channel allocations.

DTV Channel 24 ERP Should be Increased to 500 kW

Appendix B to the August 14, 1996, Sixth Further Notice of Proposed Rule Making ("Sixth FNPRM") to MM Docket No. 87-268 tentatively assigns DTV Channel 24 to KOFY-TV, with an average effective radiated power ("ERP") of 255.2 kW.

This is substantially less than the 800 kW of DTV ERP that would be allowed for the height above average terrain ("HAAT") of the proposed KOFY-TV DTV antenna. KOFY-TV proposes to operate from a shared DTV antenna, which is to be mounted at an effective height of 427 meters (corresponding to a center of radiation height of 205 meters AGL and 459 meters AMSL). As shown in the attached Figure 1, which is a plot of maximum DTV ERP versus HAAT from Paragraph 95 of the Sixth FNPRM, a newly-proposed DTV station would be allowed an ERP of approximately 800 kW for an effective height of 427 meters (1,401 feet).

Because of transmission line and antenna input power limitations of the tentatively selected DTV antenna to be shared by all of the Sutro Tower DTV stations, the maximum average DTV ERP available to KOFY-TV for its DTV Channel 24 assignment will be approximately 500 kW. Therefore, that DTV power level, representing a 2.9 dB increase over the 6th FNPRM 255.2 kW power level, is requested.

No Interference Would Be Caused to DTV Channel 23 at Cotati

Based on the DTV-to-NTSC and DTV-to-DTV separations proposed in the 6th FNPRM, there is only a single short-spacing for KOFY-TV's tentatively assigned DTV Channel 24: Station KRCB-TV, NTSC Channel 22, Cotati, California, has been tentatively assigned DTV Channel 23. The KRCB-TV transmitter site, at Sonoma Mountain, is located 66.7 kilometers from the Sutro Tower, whereas adjacent-channel DTV stations are to be either within 32.2 kilometers of each other, or, separated by at least 88.5 kilometers. Therefore, the KOFY-TV DTV Channel 24 allotment, and the KRCB-TV DTV Channel 23 allotment, are mutually short-spaced.

In determining the NTSC facilities of non-commercial educational Station KRCB-TV, it was discovered that the directional antenna pattern shown in the Commission's data base, designated "Bog ODD830224KI," has a 180° error in orientation. The Commission's data base calls for no rotation of the "oddball" pattern (representing a 270°-wide Bogner Model B8U-188-M "cardioid" pattern), whereas discussions with the KRCB-TV chief engineer, and review of the KRCB-TV 1983 construction permit application (filed on or about February 24, 1983) and the 1985 amendment to that application (filed on or about June 10, 1985), indicate that the actual axis of symmetry for the Bogner antenna is 325°T instead of 145°T (giving main lobes of radiation at 25°T and 265°T instead of 85°T and 205°T). The directional antenna orientation, as reflected in the Commission's database for the KRCB-TV antenna, is shown in the attached Figure 2, and the orientation of the actually-installed KRCB-TV antenna is shown in Figure 3.

It can be seen that the actually-installed antenna orientation results in (1) main beam radiation to Cotati, KRCB-TV's principal community, and near main-beam radiation to Santa Rosa, the major population center being served by KRCB-TV; and (2) places the Sutro Tower in the null of the KRCB-TV antenna rather than in its main lobe. Since the Commission assumed that, for purposes of generating the tentative table of DTV allotments, a "clone" of a UHF TV station's NTSC antenna would be used, it would appear that the 6th FNPRM over-predicted the interference between the two adjacent-channel DTV allotments by 3.5 dB (*i.e.*, the difference between the main-beam radiation of the KRCB-TV directional antenna and its back-lobe null).

The attached Figure 4A shows the terrain-sensitive coverage that would result should KRCB-TV build its tentatively-assigned DTV Channel 23 facilities at Sonoma Mountain, with a main-beam coverage ERP of 50 kW, and either multiplex its DTV signal into its existing NTSC antenna, or, alternatively, build a separate DTV antenna with a pattern identical to its existing NSTC antenna. Figure 4B shows those areas where the KRCB-TV DTV Channel 23 signal would (1) be ≥43.8 dBu (the UHF DTV coverage threshold) and the desired-to-undesired ("D/U") ratio from the proposed KOFY-TV DTV Channel 24 facilities at Sutro Tower and at 500 kW ERP (DA maximum) would not exceed -43.2 dB (the interference ratio defined in the 6th FNPRM for an upper-adjacent DTV channel); (2) those areas where the DTV Channel 23 signal would be ≥43.8 dBu but the D/U ratio from DTV Channel 24 would be less than -43.2 dB (that is, those areas where the DTV Channel 23 signal would lack service because it would be interference-limited); and finally, (3) those areas where the DTV Channel 23 signal would be less than 43.8 dBu (that is, those areas where the DTV Channel 23 signal would lack service because it would be noise-limited).

Figure 4B shows that there are no areas in the North Bay where the KRCB-TV DTV Channel 23 signal would be interference-limited. Further, even with KOFY-TV's DTV Channel 24 operating at 500 kW (a 2.9 dB increase over that proposed in the 6th FNPRM), this represents less interference to KRCB-TV's DTV Channel 23 than was proposed in the 6th FNPRM, because of the 3.5 dB interference over-prediction caused by the 180° error in the orientation of the directional antenna pattern assumed by the Commission for the KRCB-TV DTV Channel 23 facilities.

Nor would significant interference be caused to the KOFY-TV DTV Channel 24 facilities. Figure 5A shows the terrain-sensitive DTV Channel 24 coverage that would result if the ERP is increased to 500 kW, and Figure 5B shows the interference that DTV Channel 24 would receive from DTV Channel 23; that is, again those areas where (1) the DTV Channel 24 field strength is above 43.8 dBu and the D/U ratio from the lower-adjacent channel KRCB-TV DTV facilities is less than -42.0 dB (the interference ratio defined in the 6th FNPRM for a lower-adjacent DTV Channel); (2) those areas where the DTV Channel 24 signal would be ≥43.8 dBu but the D/U ratio from DTV Channel 23 would be less than -42.0 dB); and finally, (3) those areas where the DTV Channel 24 signal would be less than 43.8 dBu. Figure 5B shows that the interference-limited areas would be quite minor, and only in the vicinity of Cotati, KRCB-TV's city of license.

Summary

Pacific FM, Incorporated respectfully requests that the power level assigned to DTV Channel 24 at San Francisco be increased from the tentatively assigned 255.2 kW to 500 kW. Such action would not cause interference to DTV Channel 23 in its North Bay primary service area, and would be less than the 800 kW specified in Paragraph 95 of the 6th FNPRM as being available to a newcomer DTV station with an effective antenna height above average terrain of 427 meters.

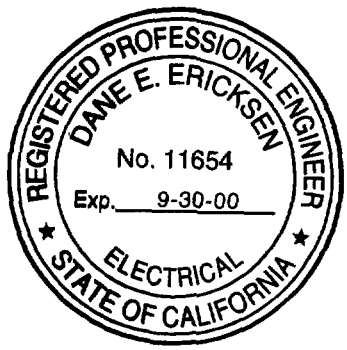
List of Figures

In carrying out these engineering studies, the following attached figures were prepared under my direct supervision:

1. Graph of allowable DTV ERP versus HAAT
2. Polar plot of KRCB-TV NTSC directional antenna orientation as indicated in the current FCC database
3. Polar plot of as-installed KRCB-TV NTSC directional antenna
4. Maps showing the KRCB-TV DTV Channel 23 F(50,90) and terrain-sensitive coverages, and the interference-limited terrain-sensitive coverage due to the DTV Channel 24 power level proposed in these comments
5. Maps shows the KOFY-TV DTV Channel 24 F(50.90) and terrain-sensitive coverages, and the interference-limited terrain-sensitive coverage due to DTV Channel 23.

Dane E. Ericksen, P.E.

November 19, 1996



Affidavit

State of California
County of Sonoma | ss:

Dane E. Ericksen, being first duly sworn upon oath, deposes and says:

1. That he is a qualified Registered Professional Engineer, holds California Registration No. E-11654 which expires on September 30, 2000, and is employed by the firm of Hammett & Edison, Inc., Consulting Engineers, with offices located near the city of San Francisco, California,

2. That he graduated from California State University, Chico, in 1970, with a Bachelor of Science Degree in Electrical Engineering, was an employee of the Field Operations Bureau of the Federal Communications Commission from 1970 to 1982, with specialization in the areas of FM and television broadcast stations and cable television systems, and has been associated with the firm of Hammett & Edison, Inc., since October 1982,

3. That the firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Pacific FM, Inc., licensee of NTSC Station KOFY-TV, Channel 20, San Francisco, California, to prepare an engineering exhibit in support of its comments to the Sixth Further Notice of Proposed Rule Making to Mass Media Bureau Docket No. 87-268, concerning digital television channel allocations,

4. That such engineering work has been carried out by him or under his direction and that the results thereof are attached hereto and form a part of this affidavit, and

5. That the foregoing statement and the report regarding the aforementioned engineering work are true and correct of his own knowledge except such statements made therein on information and belief and, as to such statements, he believes them to be true.

Dane E. Ericksen, P.E.

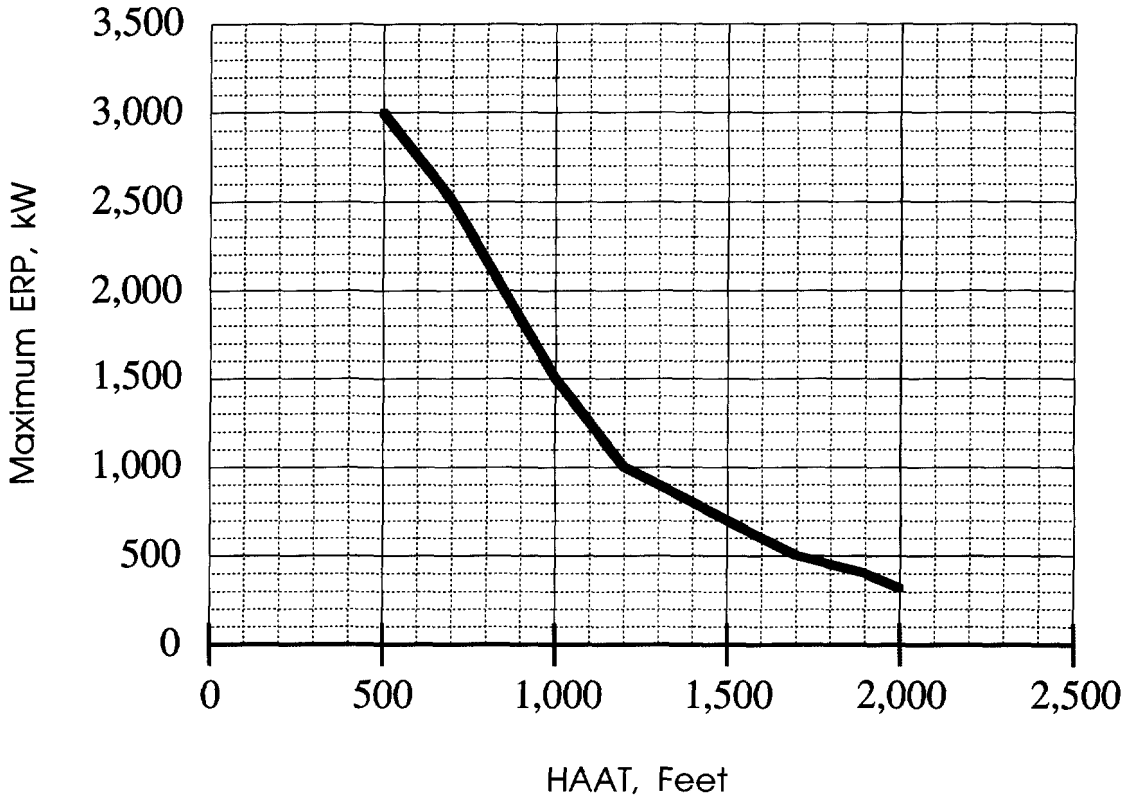
Subscribed and sworn to before me this 19th day of November, 1996

APRIL ROSSINI
Comm. # 1099495
NOTARY PUBLIC - CALIFORNIA
Sonoma County
My Comm. Expires June 2, 2000

April Rossini

Station KOFY-TV • NTSC Channel 20 • San Francisco, California

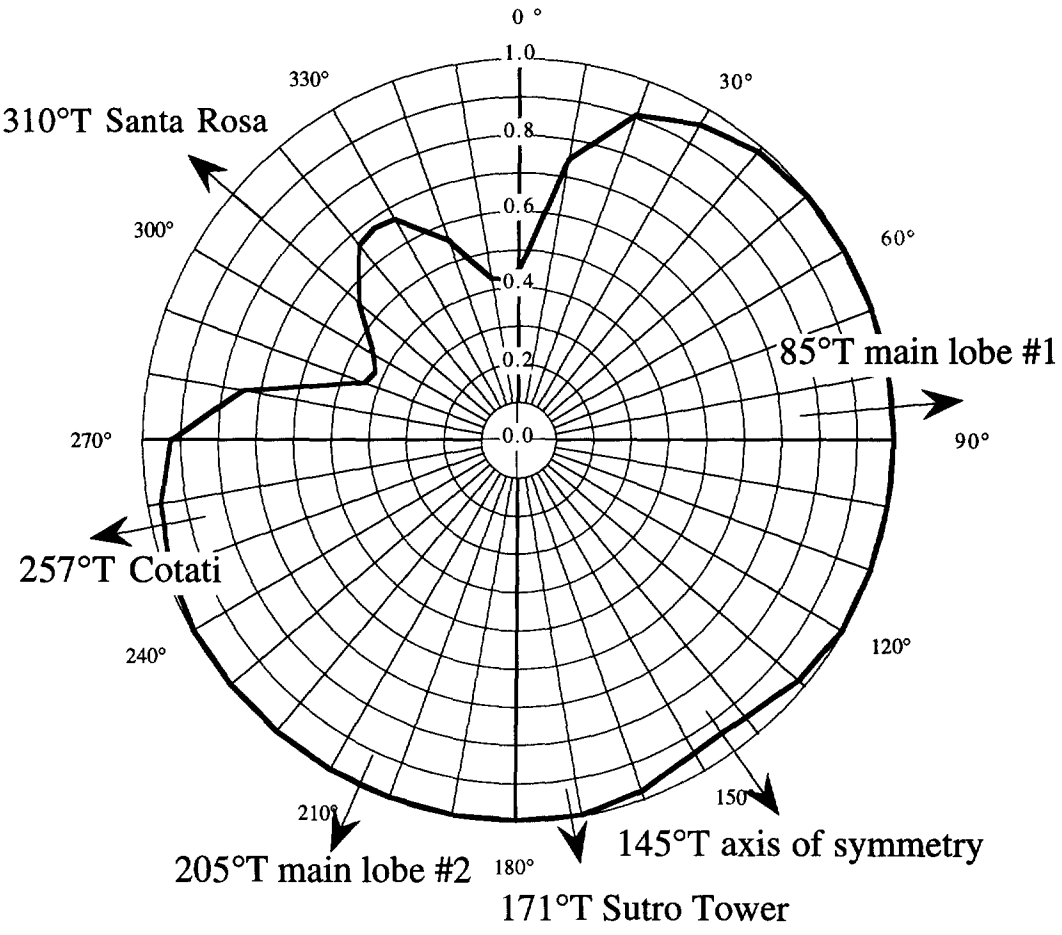
Allowable UHF DTV ERP versus HAAT



(From Paragraph 95 of Sixth FNPRM to MM Docket 87-268)

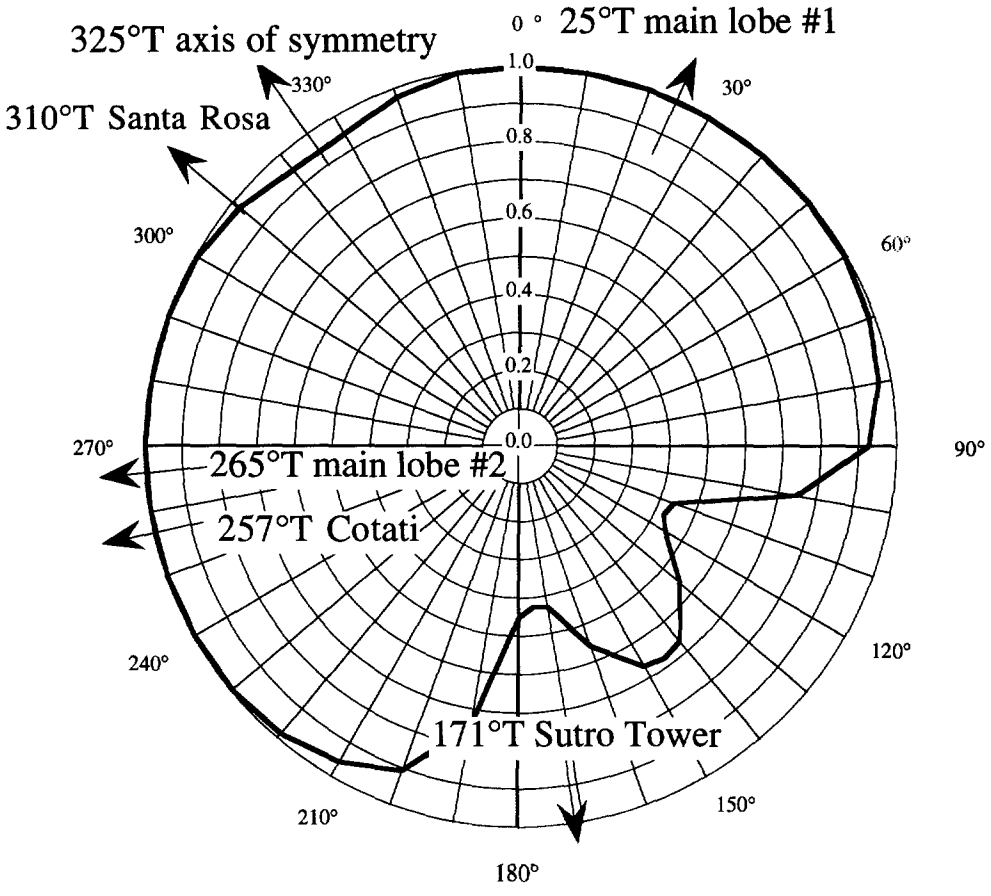
Station KOFY-TV • NTSC Channel 20 • San Francisco, California

Pattern "BOG ODD830224KI"
as Derived from FCC Database
(No Rotation of this DA is Indicated)



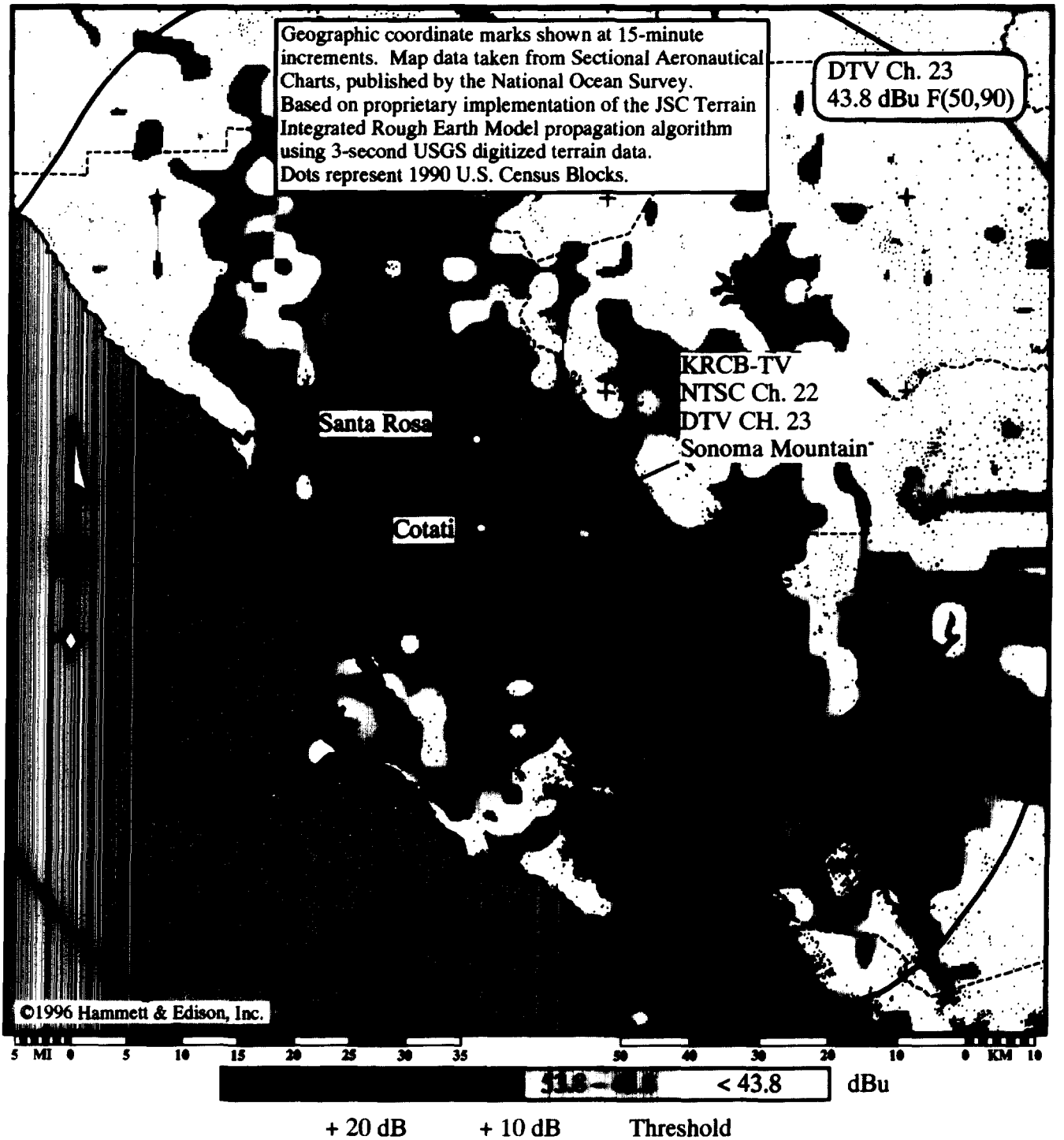
Station KOFY-TV • NTSC Channel 20 • San Francisco, California

Pattern "BOG ODD830224KI" as Derived from FCC Database, but with 180° of Rotation ADDED (Representing the As-Built DA Orientation)



Station KOFY-TV • NTSC Channel 20 • San Francisco, California

F(50,90) and Terrain-Sensitive DTV Coverages
DTV Channel 23
"Clone" of Existing KRCB-TV DA Assumed
ERP = 50 kW (DA) at 620 M HAAT

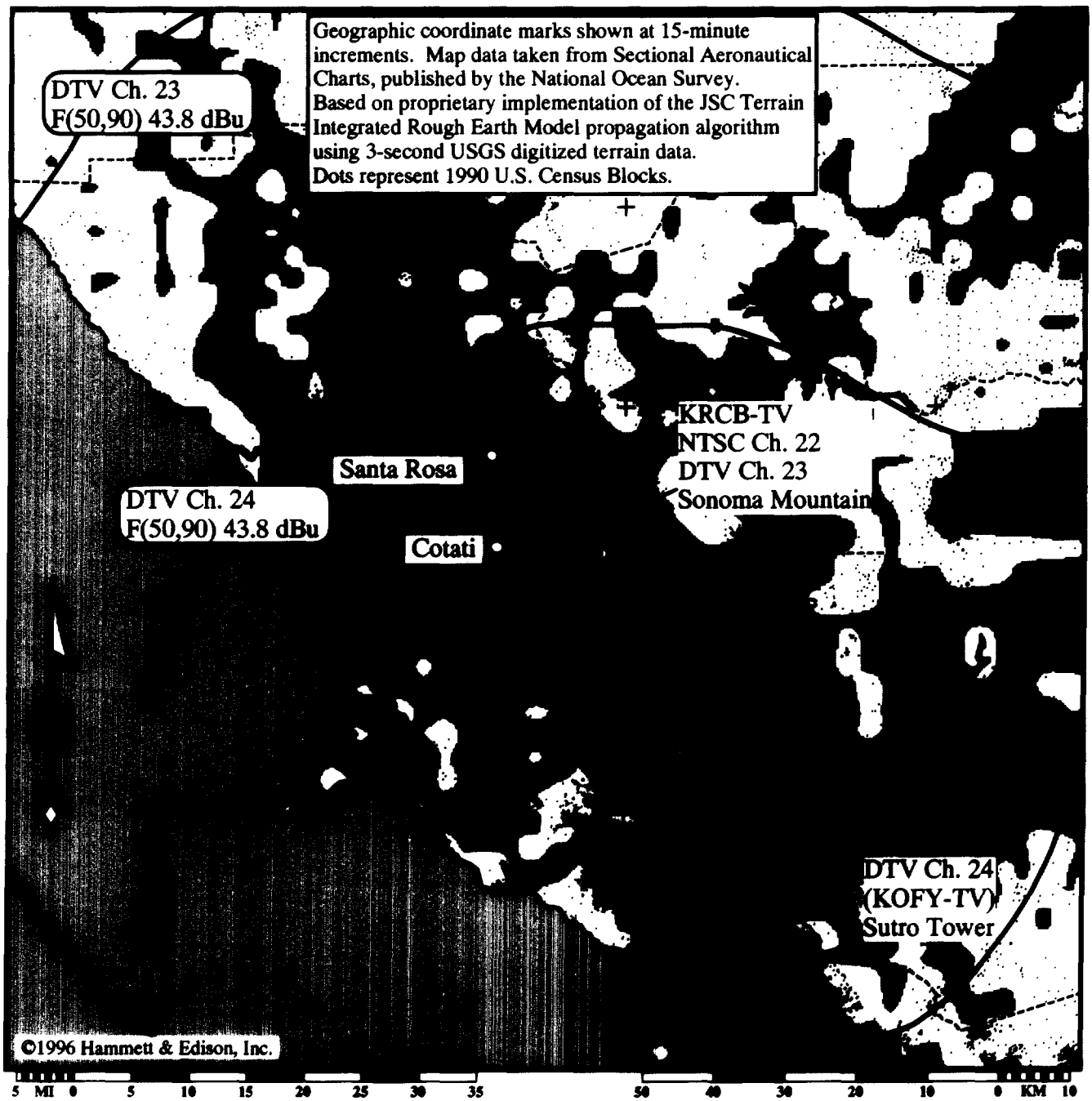


HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

961016
Figure 4A

Station KOFY-TV • NTSC Channel 20 • San Francisco, California

Terrain and Interference Limited Coverages for DTV Channel 23 at Sonoma Mountain 50 kW (DA), at 620 M HAAT with DTV Channel 24 at Sutro Tower 500 kW (DA) at 427 M HAAT as Interferer

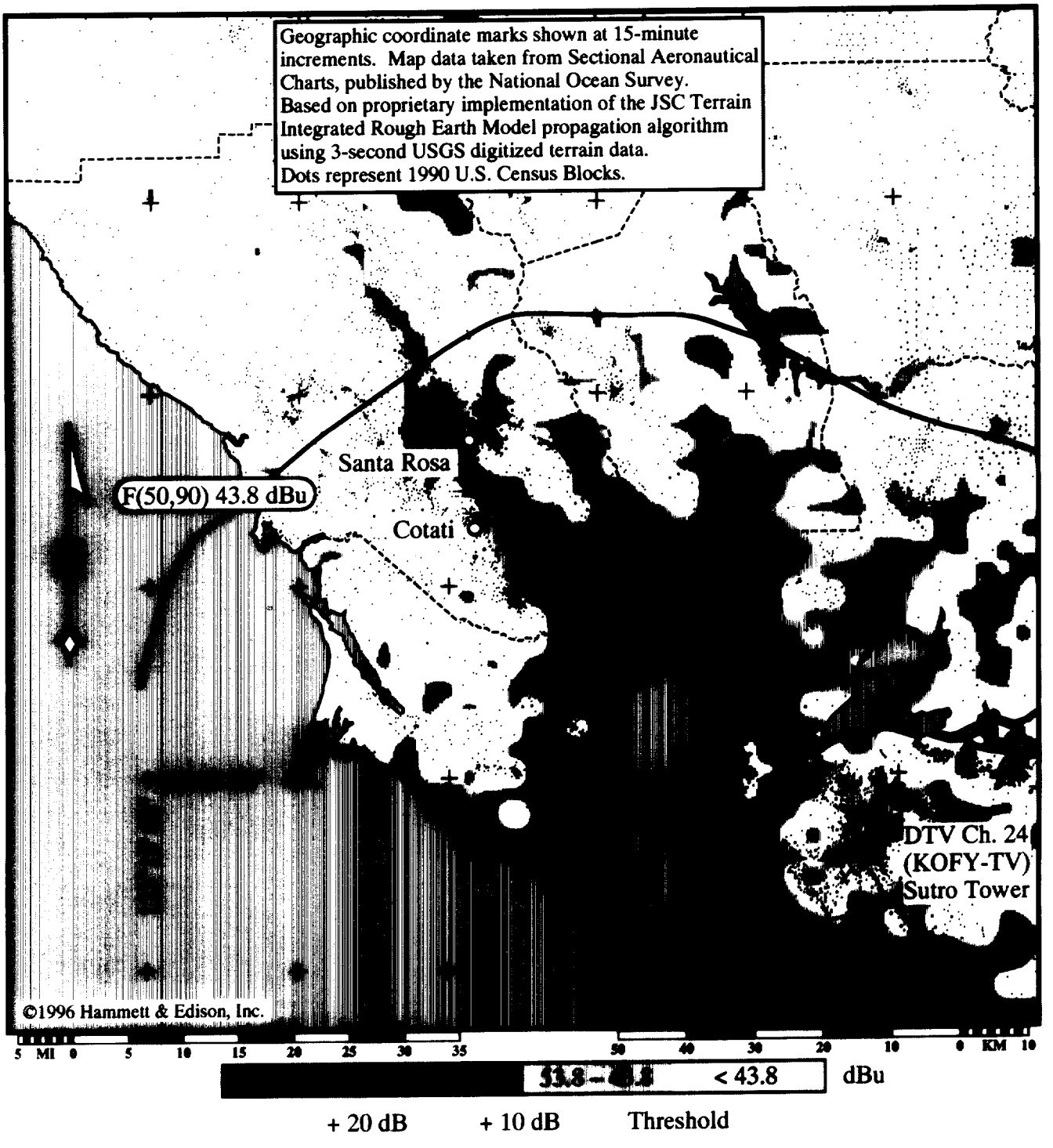


HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

961016
Figure 4B

Station KOFY-TV • NTSC Channel 20 • San Francisco, California

F(50,90) and Terrain-Sensitive DTV Coverages
DTV Channel 24
Dielectric Panel Array 500 kW ERP (DA) at 427 m HAAT

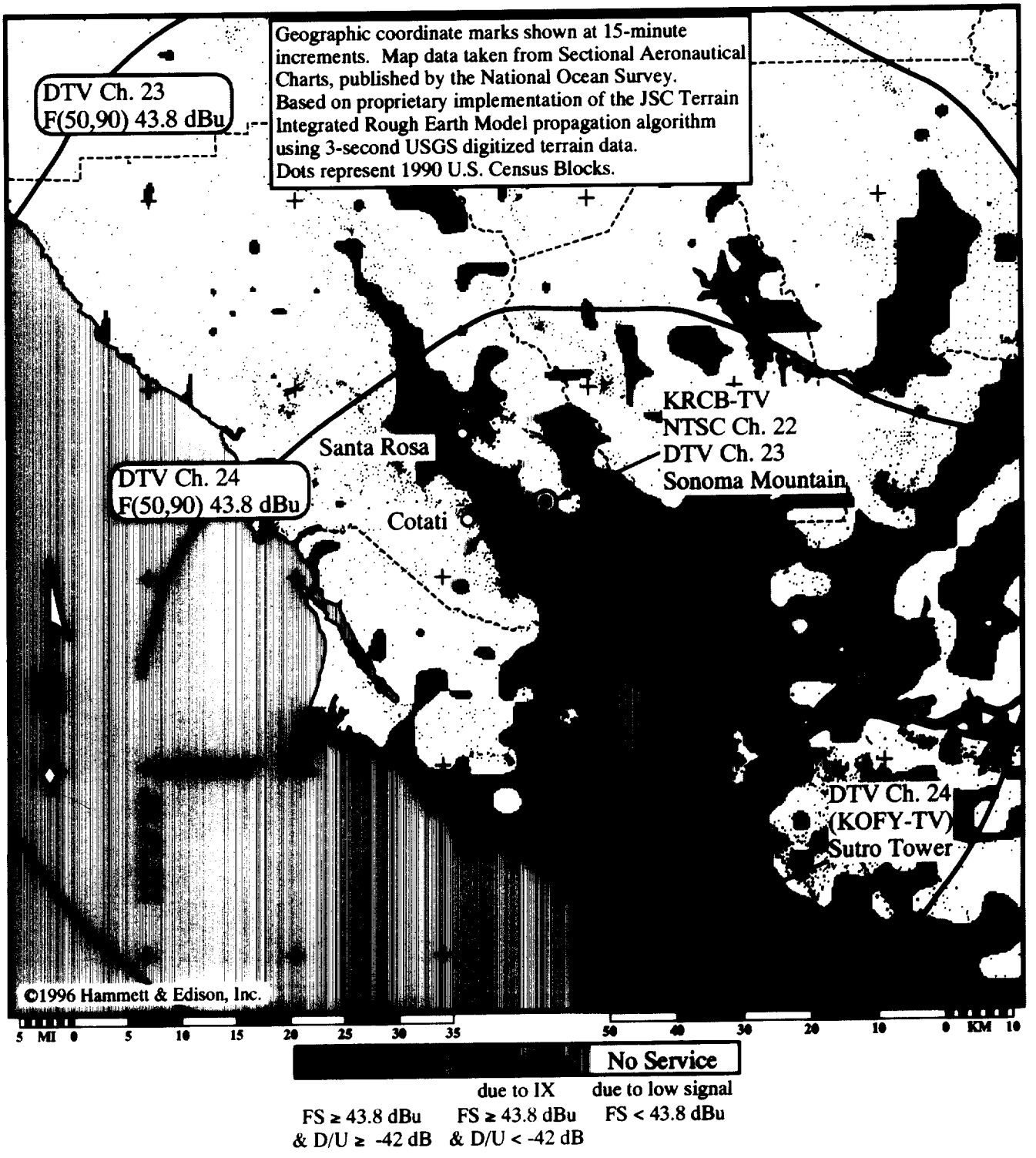


HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

961016
Figure 5A

Station KOFY-TV • NTSC Channel 20 • San Francisco, California

Terrain and Interference Limited Coverages for DTV Channel 24 at Sutro Tower 500 kW (DA) at 427 M HAAT with DTV Channel 23 at 50 kW (DA) at 620 M HAAT as Interferer



HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

961016
Figure 5B

CERTIFICATE OF SERVICE

I, Tracey S. Westbrook, a secretary in the law firm of Pepper & Corazzini, L.L.P., do hereby certify that a true copy of the foregoing "Comments of Pacific FM, Inc." were sent this 22nd day of November, 1996 by hand delivery, to the following:

Hon. Reed E. Hundt
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, DC 20554

Hon. James H. Quello
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, DC 20554

Hon. Rachelle B. Chong
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, DC 20554

Hon. Susan Ness
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, DC 20554

Tracey S. Westbrook

GPS/tsw
f:\wp\5064B\atvcomments.gps